



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DIVISION OF SITE REMEDIATION Formerly the

DIVISION OF AIR AND HAZARDOUS MATERIALS

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June 2, 1993

Francisco A. La Greca
Remedial Project Manager
U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Code 1823-Mail Stop 82
Lester, PA 199113-2090

RE: Design Analysis for 90% Design Final Submission, Interim Remedial Action, Tanks 53 and 56 - Tank Farm 5, Naval Education and Training Center, Newport, Rhode Island: May 1993

Dear Mr. La Greca:

Please find attached comments generated by the Division of Site Remediation concerning the abovementioned document. If you have any questions concerning the comments, please contact me at (401) 277-2797.

Sincerely,

Paul Kulpa, Project Manager
Division of Site Remediation

cc: Warren S. Angell, DEM/DSR
Greg S. Fine, DEM/DSR
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**DESIGN ANALYSIS
INTERIM REMEDIAL ACTION
TANKS 53 AND 56 - TANK FARM 5
NETC, NEWPORT, RHODE ISLAND**

1. General Comment

Remediation of the source area, (contaminated unsaturated zone) is an integral component of the remediation of the contaminated groundwater at the site. The report has failed to mention the possible remedial alternatives for the contaminated unsaturated zone and whether these alternatives are compatible with the proposed pump and treat system. This analysis must be done before an intelligent decision can be made concerning the remediation proposals for the site.

**2. Summary, Page 19:
Section 2.1, Paragraph 1.**

"As detailed in the Record of Decision, the proposed treatment process includes removal of metals and volatile organic compounds (VOCs) as follows..."

This document should accurately reflect that the Design Analysis is part of an Interim ROD.

**3. Ground Water Extraction, Page 21:
Section 2.2, Paragraph 3.**

"Based upon this information, eight extraction wells have been placed along the downgradient extent of the plume and five extraction wells near Tank 53 to a depth of 100 feet producing a predicted combined pumping rate of 3.3 to 26 gpm."

The report should discuss the integrity of the bedrock at the proposed depth, whether contamination is expected at that depth, etc. In addition, the report should note whether the depth of the extraction well will introduce contamination into the lower depths of the aquifer.

**4. Contaminant Concentrations and Treatment Requirements, Page 22:
Table 1.**

This table contains a column entitled "Predicted Effluent from Treatment Plant." The predicted effluent concentrations from the UV/GAC system appear to be high. The report should include a discussion on how these estimates were obtained.

**5. Inorganic Contaminants Treatment, Page 24:
Section 2.3, Paragraph 3.**

The State does not concur with the use of a homogenous aquifer in the model. At this site a small portion of the aquifer (approximately 400 feet) is contaminated, the contaminated distribution is skewed (the highest concentrations are found in the ring drain system) and the aquifer is heterogenous in nature. The State recommends that a slug test(s) be performed in the ring drain system and in the wells in the immediate vicinity of the tanks. The slug test(s) may be performed in a single day. The data generated from this test(s) may be used to modify the model and to generate defensible results.

**10. Appendix B, Page 7:
Model Calibration, Paragraph 2.**

"For initial steady state (non stressed) calibration, initial head matrices, determined from the average ground water contours for July 17, 1990 and September 20, 1990 (Figures 1 and 2, Site 13-Tank Farm Five, Phase II Report), were input to the model."

The groundwater contours generated in the Phase II report did not include groundwater elevations in the immediate vicinity of the Tanks. These elevations **must** be included in order to accurately calibrate the model and generate useable results (the proper placement of groundwater extraction wells).

**11. Appendix B, Page 8:
Model Results/Recommended Recovery Wellfield Design.**

This section of the report should include estimated remediation times for the proposed extraction scenario.

**12. Appendix B, Page 8:
Model Results/Recommended Recovery Wellfield Design.**

Eight of these wells would lie in a line stretching southwest from approximately the MW-4 location to the Fire Fighting Training Center entrance road. The remaining five wells would lie in an east-west line approximately 60 feet downgradient from Tank 53, adjacent to monitoring well MW-8."

Currently, the highest concentrations of contaminants are in the ring drain system of the tanks. Significantly lower concentrations are found in the proposed locations for the extraction wells. Justification is requested for not placing the extraction wells in the ring drain system or in the immediate vicinity of the ring drain system.

The report should also comment on the possibility of reinjection of treated water into the contaminated zone in order to reduce the remediation time and overall cost of the project.

The paragraph should specify that the sludge will be stored in accordance with Hazardous Waste Regulations pending analytical analysis.

**6. Inorganic Contaminants Treatment, Page 25:
Section 2.3, Paragraph 3.**

The report has stated that alternative means of metal contamination removal were considered during the screening design process. Again, the State reiterates its request that the report should list these alternate processes and provide detailed rationales for the exclusion of these alternatives.

**7. Civil Engineering Design, Page 32:
Sec. 3.2, Paragraph 2.**

This section of the report deals with the location of the treatment facility and support structures. Based upon the information provided in the site plans, the treatment facility appears to be located in an area of soil contamination. The treatment facility must be moved to the east in order to allow for potential remediation of these soils. In addition, the access road to the structure must also be moved to the east for the same reason. Finally, remedial activities may be required in the pipe trenches. Therefore, a gravel access road should be constructed at the site in lieu of an asphalt road. This would avoid unnecessary expenses if remediation is required in the pipe trench area.

**8. Appendix B, Page 1:
Field Aquifer Testing, Paragraph 3.**

This section of the report notes that slug test were performed on MW-1S, 2S, 3S, 5S and 6S and a pump test were performed on PW-1. However, slug tests and pump tests were not performed in the immediate vicinity of the storage tanks. Different hydraulic conductivity values are expected for the undisturbed portions of the aquifer, the portions of the aquifer excavated during the construction of the tanks, and the back fill material used in the ring drain. The test performed to date were conducted in the undisturbed portion of the aquifer. The undisturbed portions of the aquifer is expected to have the lowest hydraulic conductivity values.

The State recommends conducting slug tests in the monitoring wells in the immediate vicinity of Tank 53 and in the ring drain of Tank 53. This information is needed in order to generate useable modeling results and to ensure the proper placement of extraction wells at the site.

**9. Appendix B, Page 6:
Model Setup and Initial Input, Paragraph 3.**

"Additionally, it was assumed that the aquifer was a homogenous, isotropic medium and that steady state conditions were to be simulated."